

Remarks

Claims 1-19 are pending in this application. The Examiner has rejected claims 1-3, 6-10, and 13-14 under 35 U.S.C. § 102(e) as being anticipated by Phillips (U.S. Pub. No. 2003/0081619 A1). The Examiner has rejected claims 15, 16, and 19 under 35 U.S.C. § 103(a) as being unpatentable over Phillips. The Examiner has rejected claims 4-5, 11-12, and 17-18 under 35 U.S.C. § 103(a) as being unpatentable over Phillips in view of Applicants' admitted prior art. The invention is believed to be patentable. Independent claims 1, 8, and 15 have been amended to more particularly point out the invention. Each of these claims has been amended to point out that the HFC forward path spectrum includes a plurality of channel slots in the form of frequency ranges.

The invention relates to hybrid fiber coax (HFC) networks and to broadcast and narrowcast signal distribution technologies. Traditional approaches at the head end use radio frequency (RF) combining networks to combine and upconvert signals. Limitations of the RF combining networks (for example, static configuration) reduce the amount of HFC network bandwidth that can be economically used.

The invention involves an improved apparatus and method for providing the HFC forward path spectrum. The HFC forward path spectrum includes a plurality of channel slots in the form of frequency ranges.

Claim 1, for example, recites an apparatus for use in a hybrid fiber coax (HFC) network to provide the HFC forward path spectrum from the head end to a network fiber node. The apparatus comprises a head end modulator directly receiving a switchable digital data signal. The head end modulator internally processes the switchable digital data signal to produce the HFC forward path spectrum that directly drives the network fiber node. The HFC forward path spectrum includes a plurality of channel slots in the form of frequency ranges.

The HFC network extends the reach of an otherwise traditional cable network while using a forward path spectrum including a plurality of channel slots in the form of frequency ranges. In accordance with the invention, the head end modulator directly receives the switchable digital data signal and produces the HFC forward path spectrum that directly drives the network fiber node. This approach to producing an HFC forward path spectrum which includes a plurality of channel slots in the form of frequency ranges is used as opposed to a traditional RF combining network approach, and is believed to be patentable.

Phillips describes a hybrid fiber coax communication system. Phillips is far different than the invention and fails to suggest the claimed combinations wherein the head end modulator internally processes the switchable digital data signal to produce the HFC forward path spectrum that directly drives the network fiber node and wherein the HFC forward path spectrum includes a plurality of channel slots in the form of frequency ranges. Phillips does not involve an HFC forward path spectrum including a plurality of channel slots in the form of frequency ranges and cannot anticipate the claimed invention.

Phillips describes synchronous optical network (SONET) frames and providing SONET transmission rates between a head end and a customer premise.

For example, paragraph 1 of Phillips states that Phillips relates to providing broadband services at SONET transmission rates between a head end and a customer premise. Further, for example, paragraphs 7 and 10 of Phillips discuss SONET transmissions.

Each independent claim recites a combination of features including the HFC forward path spectrum including a plurality of channel slots in the form of frequency ranges. Phillips describes SONET transmission rates and clearly fails to suggest the claimed arrangements involving channel slots in the form of frequency ranges in the forward path spectrum of an HFC network. That is, Phillips does disclose an HFC system, but Phillips describes a SONET approach that does not establish channel slots in the form of frequency ranges as claimed.

Further, there is no motivation to modify the teachings of Phillips to achieve the claimed invention. In paragraph 6, Phillips refers to reliance on digital encapsulation of voice, video, and data signals into an analog frequency range as a shortcoming of HFC systems. Phillips teaches away from encapsulation in frequency ranges and is about providing an HFC communication system involving SONET transmission rates between a head end and a customer premise, and using SONET frames. Thus, there is no motivation to modify Phillips to achieve the claimed invention.

Claims 2-7, 9-14, and 16-20 are dependent claims and are also believed to be patentable.

Respectfully submitted,

CHARLES L. COMPTON, et al.

By Jeremy J. Curcui
Jeremy J. Curcui
Reg. No. 42,454
Attorney for Applicants

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BROOKS KUSHMAN P.C.
1000 Town Center, 22nd Floor
Southfield, MI 48075-1238
Phone: 248-358-4400
Fax: 248-358-3351